

Date: Sun, 27 Mar 94 04:30:31 PST  
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>  
Errors-To: Ham-Homebrew-Errors@UCSD.Edu  
Reply-To: Ham-Homebrew@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Homebrew Digest V94 #75  
To: Ham-Homebrew

Ham-Homebrew Digest                      Sun, 27 Mar 94                      Volume 94 : Issue    75

Today's Topics:

Antenna Tuner Project Advice Needed  
    Component Databooks ?  
    G4WIM TV transmitter components  
        Info  
    Noise figure/transistors (2 msgs)  
    RF VHF/UHF Preamp Design Params.  
        subscribe  
    V/UHF VSWR meter. Design ?

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>  
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

-----  
Date: 26 Mar 1994 08:51:03 -0500  
From: hp81.prod.aol.net!search01.news.aol.com!not-for-mail@uunet.uu.net  
Subject: Antenna Tuner Project Advice Needed  
To: ham-homebrew@ucsd.edu

In article <CKDosF.551@iat.holonet.net>, rohrwerk@orac.holonet.net (John  
Seboldt) writes:

LOOKing for winter ATU project?

I have had excellent results with my SPC transmatch from ARRL handbooks. A  
very interesting design was in Oct '92 (I think) 73 mag that was essentially a  
low pass filter: two floating variable inductors with a variable cap to ground.  
Good luck!

JimN0OCT

-----  
Date: 26 Mar 1994 08:57:03 -0500  
From: hp81.prod.aol.net!search01.news.aol.com!not-for-mail@uunet.uu.net  
Subject: Component Databooks ?  
To: ham-homebrew@ucsd.edu

In article <2mrqbu\$646@network.cc.jyu.fi>, J.Pelt@spt.fi (Jukka Peltomaki) writes:

Harris (the people who make op amps) also have a software selection guide much like Motorolas.

Good luck!

jimN0OCT

-----  
Date: 26 Mar 94 07:40:24 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: G4WIM TV transmitter components  
To: ham-homebrew@ucsd.edu

The components you need

> MC145151P2 (Motorola) and  
> M67715 (Mitsubishi).

are available from Mainline Electronics in England, France and Luxembourg.  
Their contact details are:

England:

Mainline Electronics  
Manor Court  
The Ford, off Little Glen Road  
Glen Parva  
Leicester LE2 9TL  
England  
tel: +44 533 780891/777648  
fax: +44 533 477551

France:

Mainline Electronics  
2 Chemin Du Bois Roux  
69300 Caluire  
France

tel: +33 78 23 41 44  
Luxembourg:  
Le Radio Amateur  
20 Route De Burange  
L-3429 Dudelange  
Luxembourg  
tel: +352 518806

The english prices are MC145151 - 11.90 pds and M67715 - 59.95 pds.

Alternatively, you could contact the author. His address is:

Tim Forrester, G4WIM  
24 Corran Close  
Dallington  
Northampton NN5 7AL  
England  
tel: 0604 757401

--  
Andy Rutter, g8hck

-----  
Date: 27 Mar 94 05:22:09 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Info  
To: ham-homebrew@ucsd.edu

HELP  
QUIT

-----  
Date: Sat, 26 Mar 1994 03:54:32 GMT  
From: ihnp4.ucsd.edu!swrinde!sgiblab!cs.uoregon.edu!reuter.cse.ogi.edu!  
netnews.nwnet.net!bach.seattleu.edu!quick!ole!ssc!fylz!eskimo!wrt@network.ucsd.edu  
Subject: Noise figure/transistors  
To: ham-homebrew@ucsd.edu

In article <1994Mar25.143716.1@ntuvax.ntu.ac.sg>,  
<asirene@ntuvax.ntu.ac.sg> wrote:

>Hi,  
>

> Here's a design question. I am looking at the front-end RF amp  
>which uses a 2N3904 and asking myself if I were to replace this with a  
>transistor with a lower noise figure, say a 2N5179 or BF689, will I see  
>any improvement? Is this mod worth pursuing? How much improvement can I

>expect to see here?

>

> Tks.

>

>Daniel

>

In general, low noise transistors have the most beneficial effect at higher frequencies. If your RF amp is working at about 10 MHz or less, you probably won't notice much improvement. Above that, a simple test is to listen to the noise with the antenna connected, but no signal present. Disconnect the antenna and see if the noise drops. If it does, then the limiting factor is the noise from the antenna, and not the noise generated in the front end transistor. If it DOESN'T drop, then a lower-noise transistor is called for.

You can get real fancy with noise figure measurements if you want, but for ordinary ham purposes, this test will tell you what you want to know.

-----  
Date: Sat, 26 Mar 94 19:20:54 GMT  
From: btree!hale@network.ucsd.edu  
Subject: Noise figure/transistors  
To: ham-homebrew@ucsd.edu

In article <Cn96v6.8pD@eskimo.com>, Bill Turner <wrt@eskimo.com> wrote:  
>In article <1994Mar25.143716.1@ntuvax.ntu.ac.sg>,

[ request for low noise considerations deleted ]

>In general, low noise transistors have the most beneficial effect at  
>higher frequencies. If your RF amp is working at about 10 MHz or less,  
>you probably won't notice much improvement. Above that, a simple test  
>is to listen to the noise with the antenna connected, but no signal  
>present. Disconnect the antenna and see if the noise drops.

Close, but not quite right. Disconnect the antenna and replace it with a decent terminating resistor. Then check the amount of noise being produced by the receiver.

The reason for using a dummy load instead of just disconnecting the antenna is that some RF amplifiers have a tendency toward instability when their inputs are not terminated. The instability

can cause the amplifier's noisiness to appear to either increase or decrease, primarily as a result of changes in gain in the stage.

BTW, turn off the AGC when doing the test if you want reliable results.

Best regards,

Bob Hale    hale@brooktree.com

-----

Date: Sat, 26 Mar 1994 19:57:55 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!pipex!sunic!psinntp!psinntp!arrl.org!zlau@network.ucsd.edu  
Subject: RF VHF/UHF Preamp Design Params.  
To: ham-homebrew@ucsd.edu

Dick Boley (boley.d%wec@dialcom.tymnet.com) wrote:

: If you read articles on the construction of RF preamps they  
: spen words on bypassing & shielding and claims of gain and  
: noise figures. What they do not say is what contributes  
: to these claims. Is it the tap point on a coil, a bias resistor,  
: obviously the device, or is it some arcane combination.

: The ARRL Handbook has several preamps for home construction.  
: The text mentions several transistors and some coil variations.  
: It never explains how to "tune" the peramp for best gain and/or  
: noise figure and the relationship to the various active devices.

As far as I can determine, the professionals stick the devices into test fixtures, hook up a very expensive low loss transmatch to the input, and tune it till they figure out what the best noise figure is. Then they subtract out the tuner loss, look at the settings, and tell you the optimum input impedance to use. There are also academics who will attempt to predict noise figures, based on various physical parameters. Maximum gain is pretty simple, you match the input and output impedances with a minimum of loss. It is often difficult to get maximum gain while using the impedance that uses gives the best noise figure.

The fly in the ointment is stability--generally you don't want a amplifiers to oscillate. Thus, you have yet another set of impedances to deal with, but this set has to cover all frequencies in which the device might oscillate. In my opinion, a smart designer is like a good chess player. He has a bunch of parts (like the pieces he has left) and comes up with the best solution he can. A computer is a great help, but even modern day computers don't win chess games all

the time. What people usually learn in engineering school is the rules of the game, and perhaps a little strategy. Tough engineering problems often aren't solvable by brute force--some wise guy will think of an elegant solution missed by the "experts."

: I would like to build a basic preamp and start "playing around".  
: However, I would like to have some reasonable expectations on  
: what to play with and what to expect. Any source for info in this area ??

--

Zack Lau KH6CP/1                    2 way QRP WAS  
                                     8 States on 10 GHz  
Internet: zlau@arrl.org    10 grids on 2304 MHz

-----

Date: 26 Mar 94 16:56:08 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: subscribe  
To: ham-homebrew@ucsd.edu

subscribe  
subscription

-----

Date: Sat, 26 Mar 1994 05:42:52 GMT  
From: ihnp4.ucsd.edu!swrinde!sgiblab!cs.uoregon.edu!reuter.cse.ogi.edu!  
netnews.nwnet.net!bach.seattleu.edu!quick!ole!ssc!fylz!eskimo!wrt@network.ucsd.edu  
Subject: V/UHF VSWR meter. Design ?  
To: ham-homebrew@ucsd.edu

<1994Mar25.170511.2959@galileo.cc.rochester.edu>  
<1994Mar25.235138.19546@alw.nih.gov>  
Organization: Eskimo North (206) For-Ever

Somebody makes a great VHF/UHF SWR meter which Radio Shack sells for \$39.95 and another unnamed company sells for about twice that - same meter, only the name has been changed to increase the profit.

I've had one for a couple of years. Works great.

W7LZP

-----

Date: 25 Mar 1994 21:40:01 GMT

From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!noc.near.net!hopscotch.ksr.com!  
jfw@network.ucsd.edu

To: ham-homebrew@ucsd.edu

References <2maf72\$ar0@ornews.intel.com>, <WAF.94Mar21163356@sunfish.zk3.dec.com>,  
<Cn1p3E.4Ap@news.Hawaii.Edu>

Subject : Re: Converting CB to 10 meters

jherman@uhunix3.uhcc.Hawaii.Edu (Jeffrey Herman) writes:

>In article <WAF.94Mar21163356@sunfish.zk3.dec.com> waf@sunfish.zk3.dec.com  
(William Freeman USG) writes:

>> Note that it's probably not worth converting a CB to 10m

>>\*unless\* the CB is an SSB model.

>Not True! Keying the driver stage and adding an simple BFO to the receiver  
>would give you a neat CW xcvr.

A mighty poor one, though. First, an AM detector usually makes a lousy  
product detector (hey even if it's just beeps, it should sound good); second,  
you have a 6Kc bandpass instead of 3Kc, for twice the noise.

-----

End of Ham-Homebrew Digest V94 #75

\*\*\*\*\*